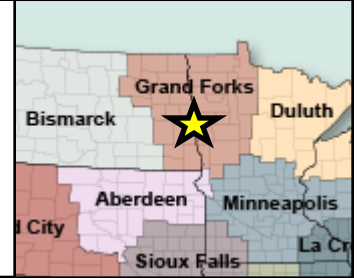


National Weather Service Grand Forks



Weather & Climate Review

October-November 2021



October

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	48.0	5.7	83	24	4.12	2.61	M	40
NWS GF	50.2	6.4	83	23	3.38	1.38	0.0	M
GFK	49.4	6.2	84	21	3.48	1.60	0.0	45
RDR	49.7	6.5	84	20	4.11	2.23	M	39
FAR	51.0	5.5	82	23	2.96	0.79	T	50
BDE	48.7	6.4	77	22	3.07	0.81	M	37
PKD	50.0	6.4	79	22	2.50	0.10	M	45
BJI	47.9	5.6	77	19	1.35	-1.50	M	35
TVF	49.9	6.4	82	24	2.92	0.83	M	38
Y63	51.0	5.6	80	28	M	M	M	M
AGA	47.9	3.6	81	17	3.49	1.33	M	M

Table 1 October 2021 Temperature and Precipitation Statistics

In Table 1, (ND) **DVL** = Devils Lake, **NWS GF** = NWS Grand Forks, **GFK** = GF Airport, **RDR** = GF Air Force Base, **FAR** = Fargo, (MN) **BDE** = Baudette, **PKD** = Park Rapids, **BJI** = Bemidji, **TVF** = Thief River Falls, **Y63** = Elbow Lake, **AGA** = Agassiz NWR (**NEW!**).

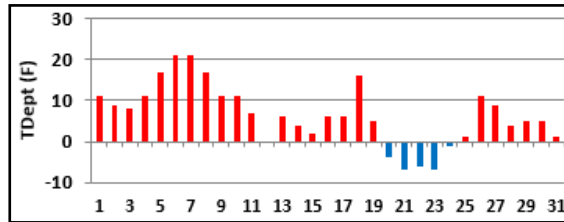


Figure 1
October Daily
Departure from
Normal
Temperatures at
the Grand Forks
Airport, ND

Blue Bars = Colder than Normal Days & Red Bars = Warmer than Normal Days

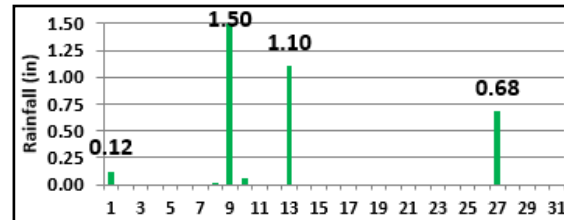


Figure 2
October Daily
Precipitation
Totals — Grand
Forks Airport

Table 1 shows the October average temperature (AveT), departure from normal temperature (TDept), highest temperature (THigh), lowest temperature (TLow), precipitation (Pcpn), departure from normal precipitation (PDept), snowfall (Snow), and peak wind speed (PWnd in mph) for 11 climate stations. The October average temperature was well above normal at nearly all sites. Precipitation amounts were above normal at all sites except Bemidji. Figure 1 plots the daily departure from normal temperatures in October 2021 at the Grand Forks Airport, ND. Other than a few days from the 20th to 24th, most days were quite mild. Figure 2 shows the October daily precipitation totals at the Grand Forks Airport. There were two days (9th and 13th) during the month that had a rainfall total over one inch.

Records

At Fargo-Moorhead (our longest running climate site), a record high minimum was tied on the 8th (61 degrees). The precipitation total of 0.73 inches on the 27th set a new daily record.

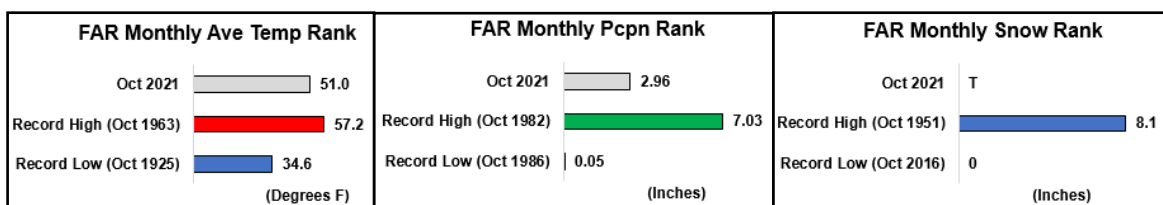


Figure 3 October 2021 Fargo Temperature and Precipitation Statistics Compared to Records

Figure 3 compares the October 2021 average temperature (AveT) and precipitation (Pcpn) at Fargo to the established records.

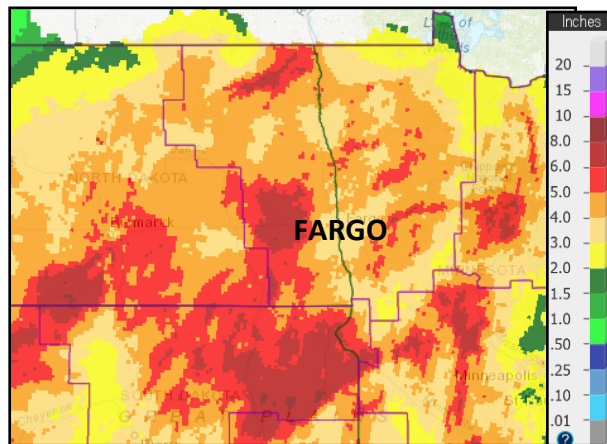


Figure 4 October Observed Precipitation

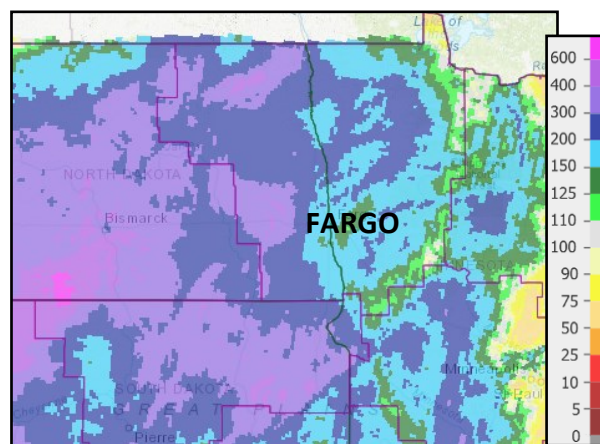
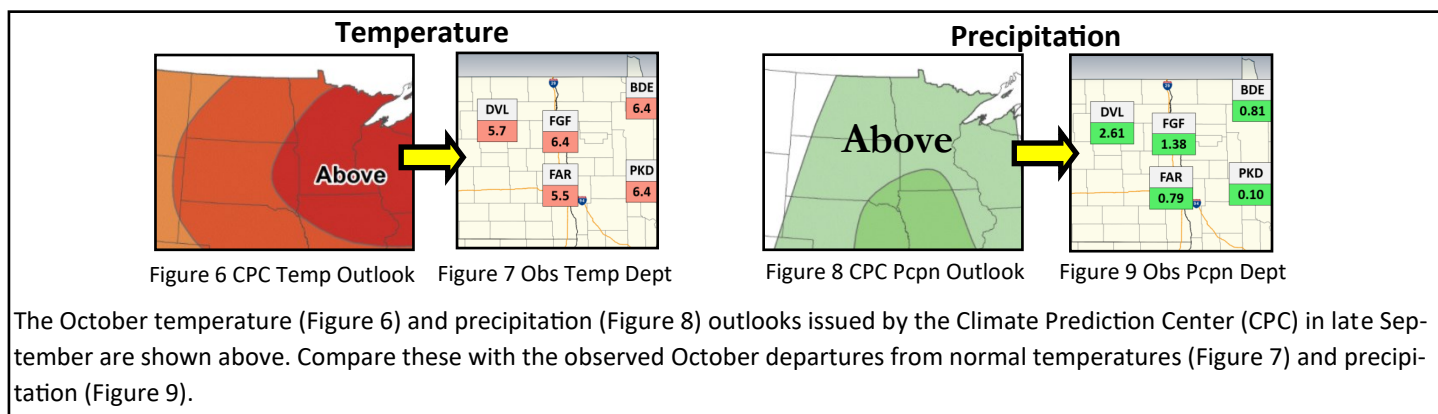


Figure 5 October Percent of Normal Precipitation

Figure 4 gives a October precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. Most of the area received over three inches of precipitation (tan, orange, and red colors). Figure 5 shows the October precipitation as a percent of normal. For the areas that received over three inches of rain, this was generally 150 to 300 percent of normal.



The October temperature (Figure 6) and precipitation (Figure 8) outlooks issued by the Climate Prediction Center (CPC) in late September are shown above. Compare these with the observed October departures from normal temperatures (Figure 7) and precipitation (Figure 9).

Longer Term Trends

Looking at just the Fargo climate site (FAR), Figures 10 and 11 show how October 2021 fits into the previous 5 months. Figure 10 plots the monthly departures from normal temperatures at Fargo. The blue bars represent months that were colder than normal, while the red bars represent months that were warmer than normal. Figure 11 plots the monthly departures from normal precipitation at Fargo. The green bars represent months that were wetter than normal, while the brown bars represent months that were drier than normal.

The May average temperature was pretty close to normal (Figure 10), while the five other months were closer to 5 degrees above normal. While May, June, and July were drier than normal (Figure 11), August, September, and October have been wetter than normal.

Figure 12 tracks how much precipitation has fallen since January 1, 2021, and how it compares to normal and last year. Snowfall is also tracked for the snow season, which began on July 1, 2021.

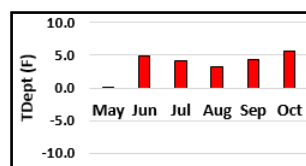


Figure 10 Monthly Departures from Normal Temps at Fargo, ND

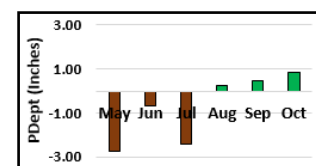


Figure 11 Monthly Departures from Normal Pcpn at Fargo, ND

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	16.15	22.09	-5.94	18.44
Snow Since Jul 1	T	1.2	-1.2	7.9

Figure 12 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

U. S. Drought Monitor

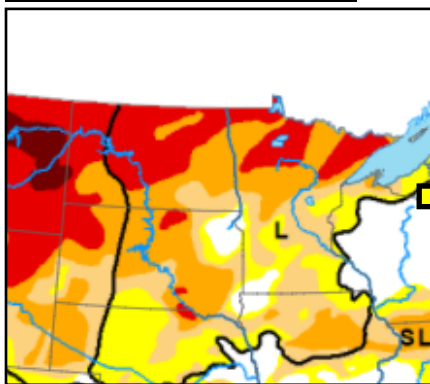


Figure 13 U. S. Drought Monitor, September 30

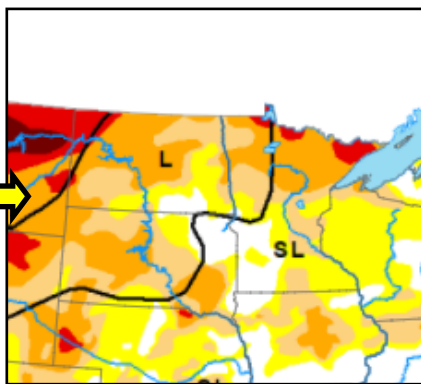


Figure 14 U. S. Drought Monitor, October 28

The above normal precipitation amounts in October continued to ease the drought categories across eastern North Dakota and the north-west quarter of Minnesota (Figures 13 & 14). The key for both figures is shown below.

Intensity and Impacts

None	D3 (Extreme Drought)
D0 (Abnormally Dry)	D4 (Exceptional Drought)
D1 (Moderate Drought)	No Data
D2 (Severe Drought)	

Convective Warnings

Eleven Severe Thunderstorm and two Tornado Warnings were issued in October 2021 (Figure 15). Two tornadoes were reported on the 9th, as a stacked low pressure system moved through the Northern Plains. One occurred 7 miles south-southeast of Lidgerwood (Figure 16), while the other occurred 1 mile south of Park Rapids (Figure 17).

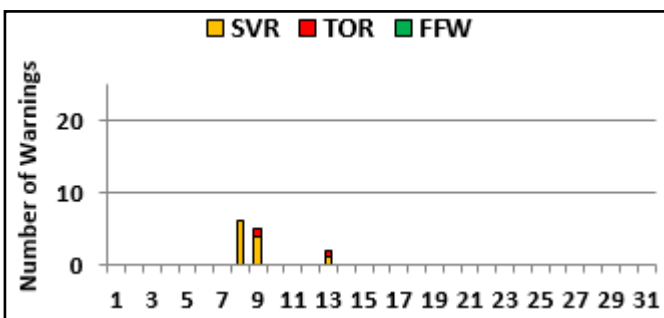


Figure 15 Number of October 2021 Convective Warnings



Figure 16 Near Lidgerwood (James Hyde)



Figure 17 Tornado Damage at Park Rapids
(Justin Michael)

November

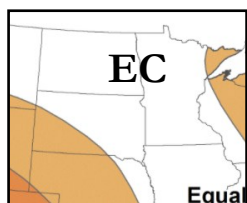


Figure 18 Temperature

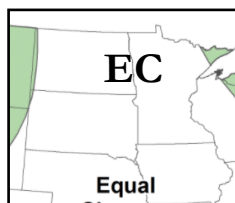


Figure 19 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 18) and precipitation (Figure 19) outlooks for November 2021 are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting equal chances for above, normal, or below normal temperatures and precipitation.

Sunrise/Sunset

Fargo, ND

Nov 1 Sunrise: 8:09 am

Sunset: 6:12 pm

Nov 30 Sunrise: 7:50 am

Sunset: 4:41 pm



Daylight Saving Time ends at 2 am on Sunday, November 7 (fall back 1 hour)

Last Year & Normals

Per Table 2, in November 2020, the average temperature was above normal at all sites. Precipitation amounts were below normal.

	AveT	TDept	Pcpn	PDept	Snow
DVL	30.3	3.8	M	M	M
NWS GF	30.9	3.9	0.10	-0.80	1.4
GFK	30.5	4.4	0.12	-0.83	1.2
RDR	30.1	4.0	M	M	M
FAR	33.1	4.3	0.27	-0.73	0.9
BDE	29.9	4.0	M	M	M
PKD	31.9	5.6	M	M	M
BJI	31.3	5.2	M	M	M
TVF	30.4	4.1	M	M	M
Y63	33.7	3.9	M	M	M

Table 2 November 2020 Temperature and Precipitation Statistics

Figure 20 shows normal highs and lows on November 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 21 shows how normal highs and lows change by November 30th. As an example, at NWS Grand Forks on November 1st, the normal high is 43 and the normal low is 27. By November 30th at NWS Grand Forks, the normal high falls to 28 and the normal low falls to 13. Figure 22 shows the normal precipitation and snowfall amounts (if available) at the same sites as Figures 20 and 21. As an example, the normal precipitation at NWS Grand Forks in November is 0.87 inches and the normal snowfall is 5.4 inches.

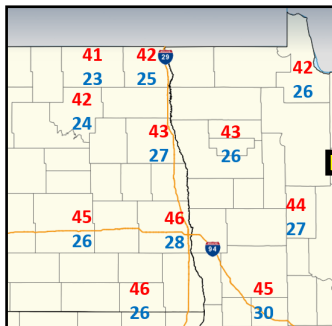


Figure 20 Normal Temps Nov 1

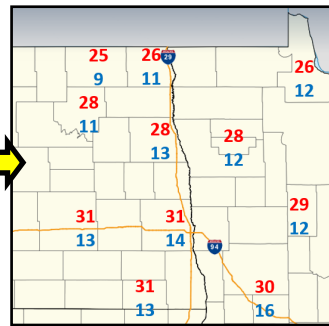


Figure 21 Normal Temps Nov 30

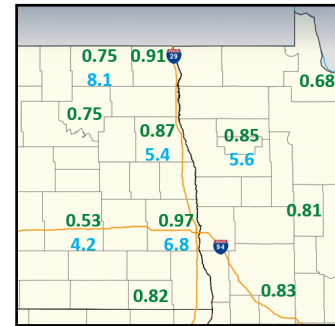


Figure 22 Normal Nov Pcpn/Snow

Winter Warnings

No winter warnings were issued in November 2020.

3 Month Outlooks (Nov-Dec-Jan)

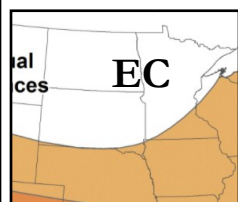


Figure 23 Temperature

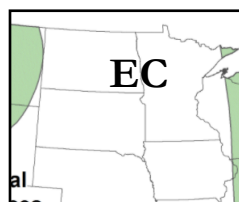


Figure 24 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 23) and precipitation (Figure 24) outlooks for November-December-January 2021-22 are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting equal chances for above, normal, or below normal temperatures and precipitation.